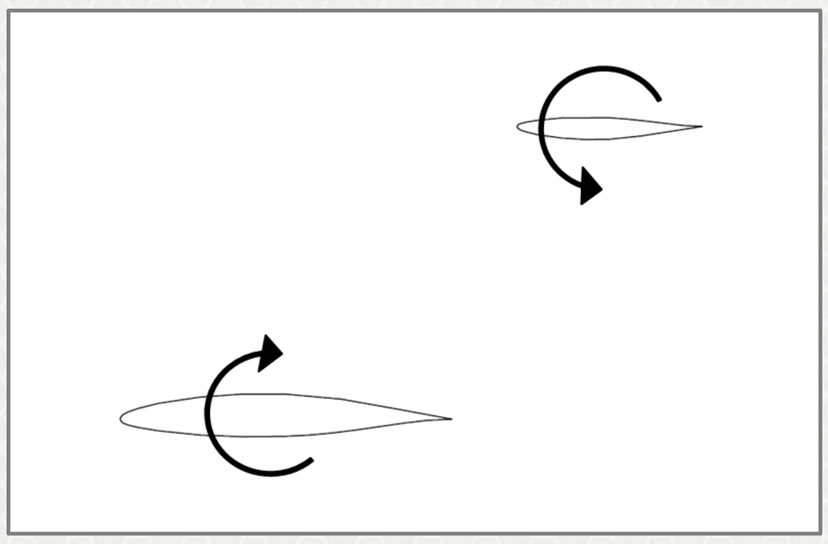
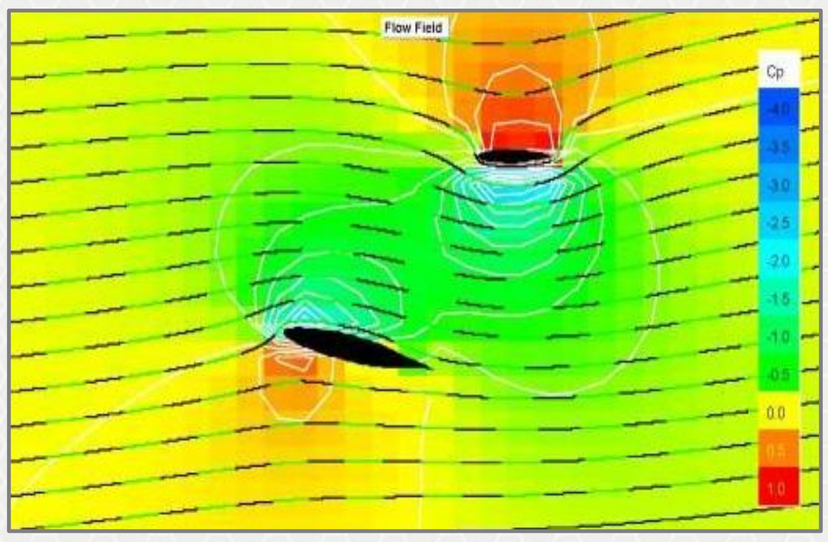
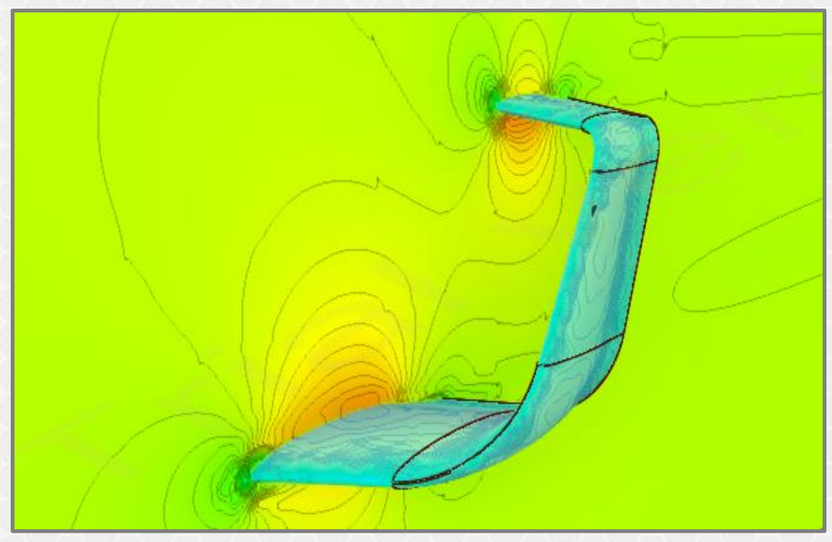
‘Passive’ Drag Reduction

Synergy begins by enabling conventional drag reduction techniques at low cost. Every part of the aircraft works together to maximize Natural Laminar Flow… while minimizing interference drag, induced drag, and turbulence. Its highly non-planar wing system reaches the highest possible ‘span efficiency’ and is the perfect aerodynamic catalyst for economy at high speed. The large tail configuration creates exceptional stability and control by means of induced drag reduction, plus great low speed handling, recovery, and stall resistance.

Double Boxtail

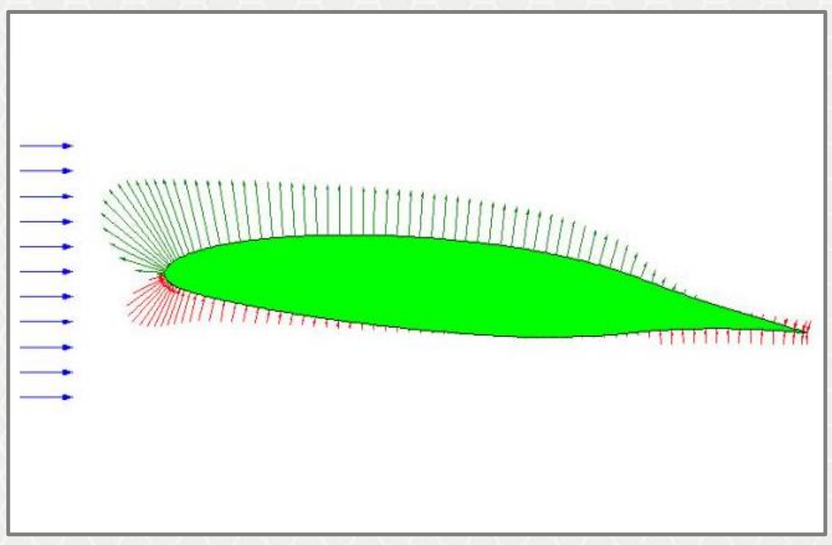


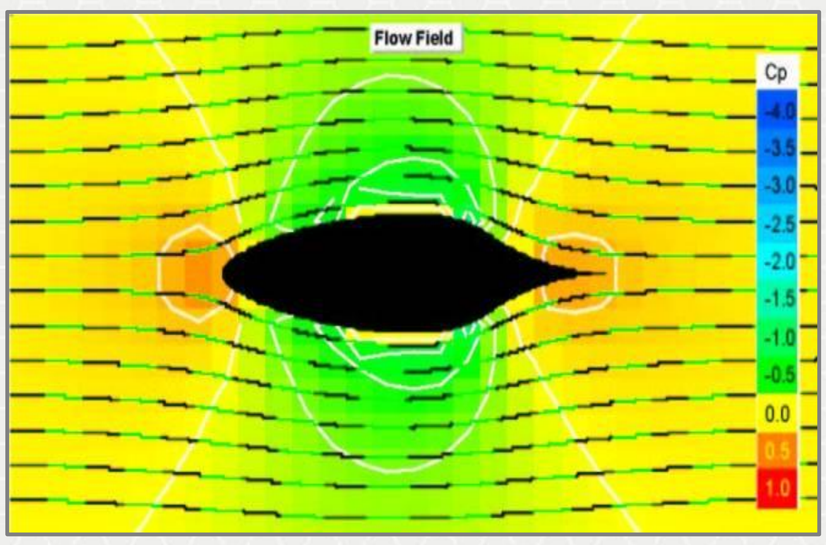


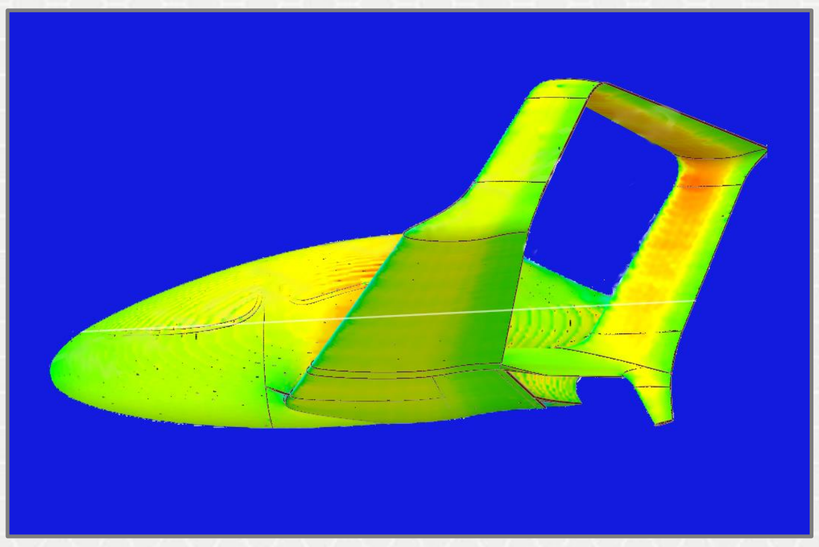


Synergy’s patent-pending ‘Double Boxtail’ arrangement allows a larger, stronger wing with less drag, in a compact high-speed package. The two horizontal tails push down, moving air in opposition to wake vortex. “Constructive” bi-plane interference reverses the usual biplane penalty, increasing laminar flow. The large tail makes for a smooth ride, stable flight and excellent handling. Synergy’s Double Boxtail breakthrough serves as a true catalyst by allowing proven active drag reduction methods to be applied directly.

Natural Laminar Flow

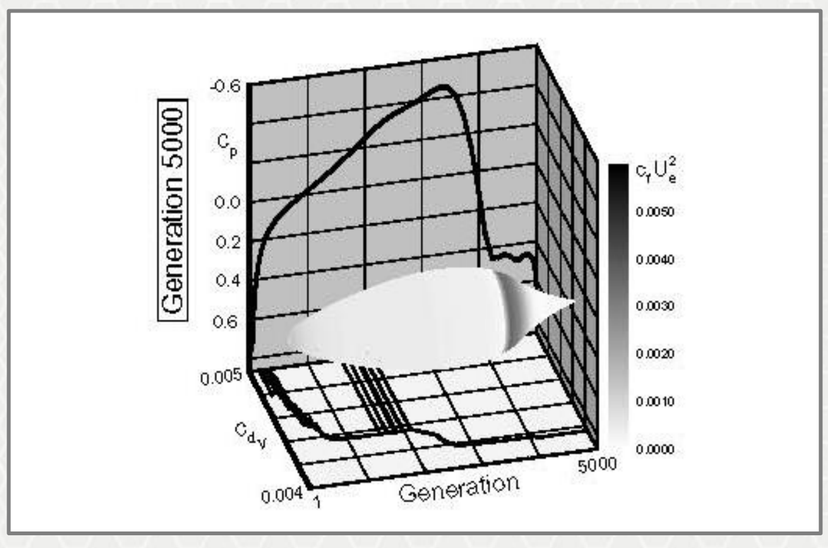


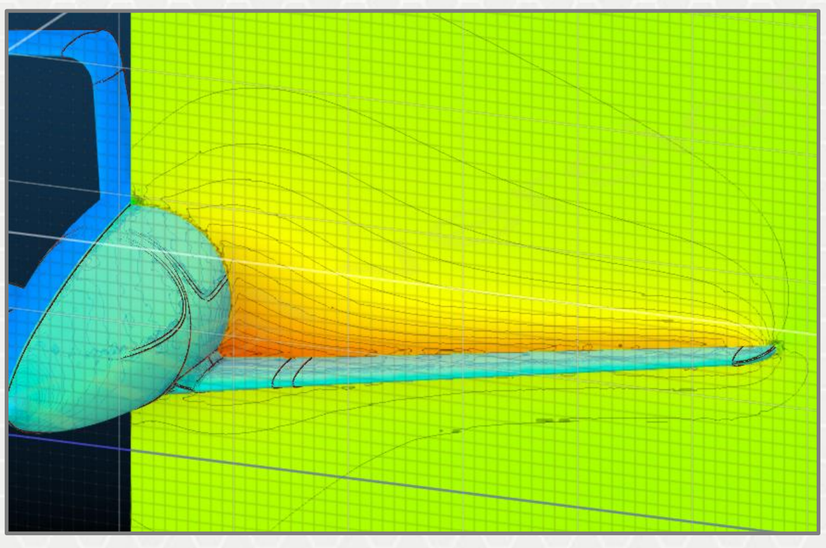


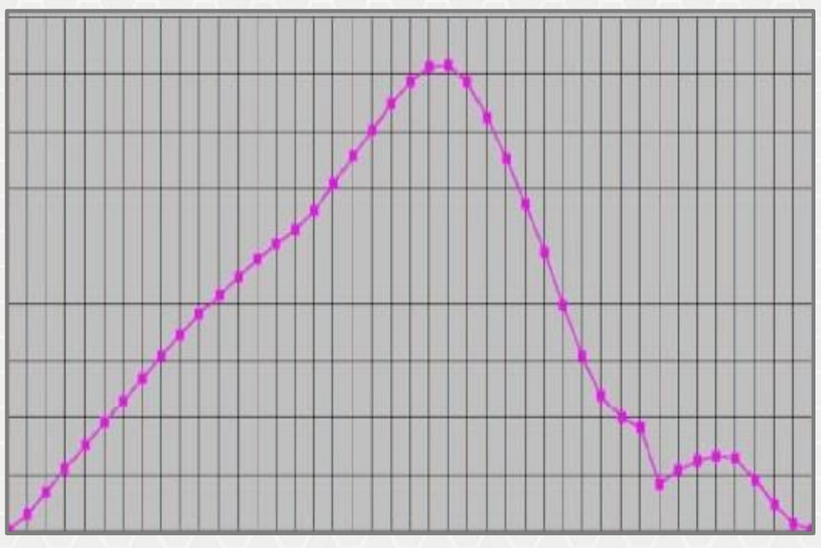


‘Laminar flow’ means no turbulence in a fluid flow. Through proper 3-D shaping, each part of the airplane is mathematically optimized for significantly less drag at its design speed. Synergy uses custom 'natural laminar flow' airfoils which have a very flat pressure and velocity distribution, easily maintaining laminar flow beyond 60% of the 'chord length'.

Subsonic Area Ruling







The volume of air that is progressively displaced by Synergy in flight changes smoothly and properly in a way that matches the identified optimum for a simplified 'body of revolution' in its speed range. This optimized volumetric displacement (or 'subsonic area ruling‘) creates a minimum pressure field disturbance condition in all phases of flight.